Statement of Work 8/22/2002

I. BACKGROUND

The Resource Conservation and Recovery Act (RCRA) of 1976 requires the U. S. Environmental Protection Agency (EPA) to institute a national program to manage hazardous and solid waste so as to protect the human health and the environment. Specific regulations for carrying out RCRA are set forth in the Code of Federal Regulations (40 CFR 256 to 268 and 270 to 272).

EPA is continually involved in a variety of activities to support, expand and implement the hazardous waste regulations. EPA is responsible for the identification of hazardous wastes and the regulation of solid and hazardous waste management activities. EPA is also responsible for method development and evaluation, quality assurance and quality control, regulatory actions related to the framework of the regulatory system, developing permits for hazardous waste facilities and other aspects of implementing Subtitle C of RCRA.

The Agency has developed or has adapted state-of-the-art fate, transport, exposure, and risk computer models and is continually updating them and applying them to support the development and implementation of regulations governing the management of solid and hazardous wastes. The Agency is also involved in collecting and developing waste characterization data, facility design and operating characteristics, site-specific hydrogeologic and meteorologic parameters, and chemical-specific fate and transport parameters. This information is used in conducting computer modeling analyses to predict the fate and transport of chemicals in groundwater, surface water, and air resulting from the treatment, storage, and disposal of solid and hazardous wastes. Specific applications will include the use of the information in determining what should, and should not, be subject to RCRA hazardous waste regulations and conducting analyses to predict the impacts of various regulatory options for the management of solid and hazardous wastes.

In conjunction with the above-mentioned studies, the Agency is required to conduct analyses in support of regulatory development, evaluate the costs and benefits of regulatory efforts, conduct sampling and analysis of waste streams, provide training to Federal and state employees, and document analyses for public review.

II. SCOPE OF WORK

The contractor shall provide support services to EPA for the development and implementation of models to predict fate, transport, exposure, and risk of chemicals in the environment and other supportive tasks as delineated in this section. The scope of work for this contract is extensive and includes a variety of tasks that will require highly specialized technical support for the EPA.

The Contracting Officer will issue work assignments for all work products for review and approval by appropriate Governmental personnel prior to preparation and issuance in final, in

accordance with the terms and conditions of the contract. The Government shall make all final policy and regulatory decisions.

Tasks that the contractor may be asked to perform fall into the following general categories:

A. Technical Support for Modeling,
B. Development of Data,
C. Regulatory Support;
D. Documentation Support, and
E. Training Support.

The following section provides descriptions of tasks in the above categories and further explains the type of assistance the contractor shall provide under this contract.

The contractor shall, during the period of performance of this contract, provide the level of effort specified in the Article of the Schedule entitled "Level of Effort" and all other resources necessary to carry out the specified work assignments issued by the Contracting Officer in accordance with the Article of the Schedule entitled "Work Assignment." The primary objective will be satisfactory completion of work assignments by the contractor within the specified time and funding constraints.

For the purposes of this contract, the terms waste management systems and operations shall be deemed to encompass hazardous and solid waste transfer, handling, storage, treatment, and disposal facilities, equipment, and processes.

III. DESCRIPTION OF TASKS

The following are task areas that serve as the foundation for specific work assignments. Because of the complex nature of the tasks, work assignments may be stated generally, which shall require the contractor to conceptualize the task and implement innovative alternative approaches for completion. The contractor shall abide by the Performance Requirements stated in Section V of the Statement of Work.

A. Technical Support for Modeling Analyses (including model development, model implementation, and analyses of model inputs and outputs)

The contractor shall:

1. Provide technical assistance to EPA by identifying, reviewing, modifying, improving, or developing computer models to support technical analysis for regulatory efforts within OSW. Potential types of models range in complexity from site-specific to national screening-level models and single medium to multi-media and include:

- models that simulate the contaminant releases from waste management and disposal units, such as landfills, land application units, waste piles, surface impoundments, tanks, combustion units, beneficial use, etc.;
- models that simulate fate and transport in the groundwater, including one-dimensional, two-dimensional, and three-dimensional models for aqueous and/or non-aqueous phase contaminants;
- models that simulate the micro- and mesoscale atmospheric fate and transport of gaseous, vapor-bound, and particulate-bound, air emissions from waste management operations;
- models that simulate the fate and transport of contaminants across land through erosion and run-off;
- models that simulate the fate and transport of contaminants in surface water and processes within surface waters after contaminants reach surface waters;
- models that simulate the fate of contaminants in biological systems (i.e., plants and animals) including the uptake from soil, water, air, and diet;
- models that simulate exposures to human receptors and/or ecological receptors;
- models that estimate risks/hazards to human and/or ecological receptors;
- models that simulate multi-media (e.g., groundwater, surface water, air, and soil) fate and transport;
- models that speciate metals for fate and transport simulations;
- models that estimate costs of regulatory options; and
- models that estimate the economic impact of regulatory options.

2. Provide technical assistance to EPA by implementing models (as noted in #1 above) to generate risk results, cost impacts, and economic impacts.

3. Provide statistical analyses of model inputs and outputs, including:
   - analyze variability and uncertainty in probabilistic modeling results;
   - develop statistical bases for probabilistic modeling approaches;
   - analyze and develop correlations among parameters used; and
   - develop national and regional distributions of environmental, waste management, cost, and economic parameters used for models.

4. Provide scientific/analytic support in a variety of academic disciplines including environmental engineering, environmental science, chemistry, thermodynamics, hydrology, geology, meteorology, limnology, toxicology, demographics, civil engineering, economics, and other fields, to support technical analysis and regulatory options development. Tasks may include:
   - review and estimate physical, chemical, and biological properties associated with the mobility and degradation of chemicals in various waste and environmental matrices;

- determine the design, operation, and performance characteristics of various waste management practices;
- characterize the nature and spatial and/or temporal variability of leachate from waste management practices;
- analyze meteorologic data, characterize microscale and mesoscale atmospheric transport and dispersion phenomena, and determine air pollution climatology for national, regional, and site-specific air pollution analyses of waste management practices;
- analyze soils data and geologic conditions and characterize ground-water flows for national, regional, and site-specific analyses of waste management practices;
- estimate regional stream flow discharge versus drainage area relationships, evaluate the accuracy of stream flow prediction methods, characterize the time variation of ground-water discharge to surface waters, and estimate stream flow, stream velocity, and time of travel for gauged and ungauged stream reaches;
- determine the geographic distribution of human populations and characterize human activity patterns (e.g., drinking water sources, farming) and population migration patterns;
- support the selection of biological and toxicological endpoints for human receptors and aquatic and terrestrial populations for use in air, surface water, and soils fate and transport models;
- characterize the nature and distribution of aquatic and terrestrial populations and identify appropriate species to assess impacts of waste management operations on humans through food consumption; and
- prepare analyses requiring utilization of EPA data bases on water quality, water supply, water use, surface water features and conditions, ground-water features and conditions, geology, soils, air quality, and meteorology.

5. Develop and/or modify pre- and post-processors on existing models to integrate into existing model frameworks to apply to on-going and future technical projects.

6. Develop and/or modify system-user interfaces (SUIs) or graphical user interfaces (GUIs) for complex computer models used in regulatory analyses to improve their accessibility for EPA personnel and the public.

7. Provide technical assistance to EPA to validate models used in the development of regulatory options. Validation efforts may include:
   - benchmarking models used for regulatory options with other models;
   - identifying, collecting, reviewing, and summarizing literature on field studies related to the fate and transport of contaminants in the environment;

- identifying, collecting, reviewing, and summarizing literature related to economic impacts of various regulatory options; and
- collecting field data to compare with modeled results.

8. Identify national experts to assist in the development and review of methodologies and models.

9. Conduct peer reviews of scientific, technical, and economic documents prepared by OSW, including:
   - identify and select qualified peer reviewers;
   - run peer review panel meetings; and
   - organize and summarize the comments submitted by the peer review panel.

   Note: The contractor shall not perform peer review of any document for which the contractor or its subcontractors were involved in either the preparation or development. OSW may set forth the qualifications for peer reviewers and identify a pool of qualified individuals. OSW will **not** recommend any particular individual or firms.

B. Development of Data

The contractor shall:

1. Design sampling plans to acquire facilities design and operating characteristics; waste properties data; environmental data; and biological, chemical, and physical properties data.

2. Conduct literature searches to gather, and evaluate engineering, hydrogeologic, aquatic, meteorologic, environmental, economic, and physicochemical data.

3. Provide expertise in geographical information systems to develop site-based data sets that include the location of sensitive environmental features, such as wells and other drinking water sources, residential communities, sensitive land use features, endangered species habitats, critical habitat areas, and other environmental features.

4. Assemble data sets, provide quality assurance and quality control on data sets, and process the format of the data for use in technical analyses.

5. Provide technical expertise for the development or evaluation of data to support risk and economic analyses.

6. Develop and evaluate protocols for sampling, testing, and analysis of waste, leachate, ground-water, surface water, air, soils, sediments, and biological samples to determine their physical, chemical, or biological characteristics.

7. Acquire, develop, and maintain computerized data bases, including entering data, updating data bases, and retrieving data.

8. Review and assess the quality of data.

C. Regulatory Support

The contractor shall:

1. Conduct studies and provide technical support for the development of regulations by the EPA, specifically Office of Solid Waste.

2. Provide research and technical support to regulatory challenges, including:
   - conduct literature searches, EPA-approved surveys, and questionnaires;
   - prepare case studies;
   - perform on-line searches of various databases; and
   - perform analyses of options and develop options papers.

3. Provide general support for workgroup committees.

4. Review and evaluate relevant comments, either in response to previous regulatory efforts or from other activities.

5. Compile and prepare draft responses to those comments for final review and approval by EPA.

6. Provide administrative and data information gathering support for OSW's preparation of required analyses to support regulatory efforts such as requirements under the Regulatory Flexibility Act (RFA), the Small Business Regulatory Enforcement Fairness Act (SBREFA), the National Technology Transfer and Advancement Act, (NTTAA), and other benefits analyses.

7. Identify and analyze regulatory outcomes; collect pertinent data relevant to these analyses from available sources and identify areas where additional data is needed.

D. Documentation Support

The contractor shall:

1. Prepare technically sound documents to fully describe technical analyses, including:
   - technical background documents describing risk or economic analyses in support of regulatory efforts;
   - user's guides describing how to implement models used to conduct modeling efforts
   - database support documents that describe how to use databases, parameters in databases, sources for data, and other references;
   - executive summaries to provide "plain language" descriptions of highly technical documents.

2. Prepare technically sound background documents to support regulatory efforts, including:
   - collect pertinent data relevant to regulatory changes from sources such as the EPA, other Government agencies, industry, and the open literature;
   - evaluate all data to ensure accuracy and data quality;
   - identify any additional data, including resources necessary for data acquisition, and the impact this information will have on the quality of the final document;
   - coordinate with other program offices within EPA;
   - prepare technical background documents with associated editing from draft through final form; and
   - provide technical assistance in the preparation, review, and revision of all background documents prepared in accordance with the guidance given in the Federal Register (FR, Volume 45, No. 98, page 33113, May 19, 1980, 40CFR 261).

3 Perform editorial and graphic support tasks as needed to facilitate completion of Tasks A through E and the use of the resulting products, including:
   - prepare camera-ready finished reports with high quality graphics, layouts, and clear, readily understood text on the technical subjects addressed herein;
   - prepare layouts, high quality graphics, and related publishing tasks;
   - develop audio-visual aids for briefings, workshops, and meetings (to be specified in work assignments);
   - develop slide shows and audio or videotape versions of reports, studies, briefings, workshops, and meetings (to be specified in work assignments); and
   - assist EPA in dissemination of updated models and data in response to requests from other Offices or groups.

E. Training Support

The contractor shall:

1. Provide technical and administrative assistance for EPA to train Federal and State employees in activities related to the selection and use of models in solid and hazardous waste programs.

2. Assist EPA in developing materials for use in conducting seminars and workshops on solid and hazardous waste modeling approaches. These materials include manuals, audio-visual aids, sample computer programs, etc.

3. Arrange for the use of conference and meeting facilities, facilitate conference progress, record and summarize proceedings.

4. Provide technical assistance to EPA in organizing and conducting training seminars, workshops and conferences on solid and hazardous waste modeling approaches.

IV. OTHER REQUIREMENTS

The contractor shall abide by the following additional requirements:

1. The contractor shall follow the provisions of the Paperwork Reduction Act in the implementation of this contract.

2. It is anticipated that the contractor may have to use RCRA confidential business information (CBI) for some of the work. The contractor shall get such clearance and shall abide by the RCRA CBI protocol for maintaining and reviewing CBI documents.

3. The contractor and its subcontractors shall also be required to disclose any potential conflicts of interest (COI) in performing the work outlined here or work to be performed in response to the various work assignments.

4. All work to be performed by the contractor under this contract shall be for use of EPA and the contractor shall make sure that the deliverables by the contractor are not construed or represented as EPA policies, positions, or decisions.

5. The contractor shall follow a quality assurance (QA) program plan developed for this contract for performing the work under this contract. The plan shall include QA policies, procedures and management systems to assure high quality of the products. The plan shall include a description of how the contractor will make sure that all products containing data and results generated under this contract have been carefully reviewed and are of high quality. The contractor shall submit its QA plan to EPA for approval before the start of work under this contract.

6. The contractor shall manage this contract and its human resources for this contract with the objective of seeking to continuously improve its operations and shall assure quality of its products. The contractor also shall indicate means of measurement of annual improvement in its quality of operations under this contract.

7. The contractor also shall abide by the performance quality requirements for each task as described in Section V (PERFORMANCE REQUIREMENTS) of this STATEMENT OF WORK.

8. The contractor also shall abide by other requirements as stated in different sections of this RFP. In general all reports, analyses, recommendations and other written deliverables resulting from the support contract shall be clear, concise, well-organized, and complete. They should meet EPA specifications for hard copy and electronic deliverables in current guidelines as described in the Section on Reports in this Request for Proposals. As a minimum deliverable documents shall: a) explain and rank policy or action alternatives, if any; b) describe procedures used to arrive at analyses/recommendations; c) summarize the substance of deliberations; d) report any dissenting views; e) list sources relied upon; f) make clear the methods upon which conclusions/ recommendations are based.

V. PERFORMANCE REQUIREMENTS

The work under this contract shall be performed through a series of work assignments. A work assignment from EPA will state the specific requirements for the work to be performed in response to that work assignment. The contractor also shall abide by the following performance quality requirements for each task unless stated otherwise in the work assignment:

A. Technical Support for Modeling Analyses

(including model development, model implementation, and analyses of model inputs and outputs)

- the deliverable documents describing reviews, adaptations and development of models resulting from this task shall be clear, concise, and complete and delivered according to EPA specified delivery schedules;

- the materials prepared shall clearly demonstrate that they are technically appropriate to meet the objectives of the project;

- the materials shall clearly demonstrate that the performance of a particular model is consistent with the technical basis and algorithms that serve as the foundation of the model code.

- all models adapted under this contract shall be thoroughly tested before submission

to EPA to ensure 100% functionality.

- the contractor shall ensure that the version of a particular model implemented under this task is technically appropriate for the project;

- the written materials describing the selection of a particular model or models used, the input data required to run the model, and the results generated by the model shall be clear, concise, and complete and delivered according to EPA specified delivery schedules;

- the technical analyses and other written materials evaluating the results from this task shall respond to the issues identified by EPA, including supporting rationale for recommendations and conclusions.

- written materials describing the techniques used for data analysis and the results of the analyses under this task shall be clear, concise, and complete.

- as a minimum, clearly state the basis of assumptions made in all analyses; report the sources of information along with the level of reliability of data; and report estimated the range of errors in the data or in resulting analyses from these data inputs.

- peer reviewers shall be recognized experts in their field and qualified to review materials they are asked to review.

B. Development of Data

- all materials describing the methodologies used to collect data, including sources of data (published and electronic data), shall be clear, concise, and complete;

- the deliverable documents shall clearly demonstrate that the data collected by a particular method is consistent with the scope and application of the method;

- documents describing the Quality Assurance/Quality Control and record keeping protocols implemented during this task shall be clear, concise, and complete.

- materials describing study designs and reviews conducted under this task shall respond to the appropriate issues identified by EPA, including supporting rationale for recommendations and conclusions.

C. Regulatory Support

- the contractor shall describe the various alternative regulatory action options with pros and cons; describe clearly and completely the methods and information used

to arrive at the alternatives; and describe the quality and quantity of inputs used and report any dissenting views.

- all deliverable documents should be stated in clear, concise, commonly used, easily understood, measurable terms.

D. Documentation Support

- all reports and graphic materials shall be clear, concise, well-organized and complete.

- the written documents prepared for the use of public shall follow the Plain English style unless stated otherwise in any task order.

E. Training Support

- training course materials shall be clear, concise, and complete to meet the objectives of the training.

- the contractor shall obtain assessment of and comments on training sessions through post-training evaluation forms; 80% favorable evaluation results shall serve as evidence of successful training.